

We claim:

1. An isolated polypeptide, comprising a sequence represented by one of SEQ ID NO:1 through SEQ ID NO:7.
2. A pharmaceutical composition, comprising a polypeptide of claim 1 and a pharmaceutically acceptable carrier.
3. An immunogenic composition, comprising a polypeptide of claim 1 and, optionally, an adjuvant, the composition being immunogenic.
4. The immunogenic composition of claim 3, which stimulates cytotoxic T cells specific to the polypeptide.
5. The immunogenic composition of claim 3, which comprises an epitope that stimulates *Theileria parva* (*T. parva*-) specific cytotoxic T cells.
6. A vaccine, comprising one or more polypeptides of claim 1 and, optionally, an adjuvant.
7. The vaccine of claim 6, which protects an animal against *T. parva* infection.
8. The polypeptide of claim 1, which is present in detectable amounts in isolates of *T. parva*.
9. The polypeptide of claim 1, comprising a *T. parva* antigen.
10. The polypeptide of claim 1, wherein the sequence is represented by SEQ ID NO:1.
11. The polypeptide of claim 1, wherein the sequence is represented by SEQ ID NO:2.
12. The polypeptide of claim 1 wherein the sequence is represented by SEQ ID NO:3.
13. The polypeptide of claim 1, wherein the sequence is represented by SEQ ID NO:4.
14. The polypeptide of claim 1, wherein the sequence is represented by SEQ ID NO:5.
15. The polypeptide of claim 1, wherein the sequence is represented by SEQ ID NO:6.
16. The polypeptide of claim 1, wherein the sequence is represented by SEQ ID NO:7.

17. An isolated polynucleotide comprising:
- (a) a sequence represented by one of SEQ ID NO: 25 through SEQ ID NO:31;
  - (b) a sequence which is at least about 90% identical to a sequence of (a);
  - (c) a sequence which hybridizes specifically under conditions of high stringency to a polynucleotide which comprises a sequence of (a);
  - (d) a sequence which encodes a polypeptide represented by SEQ ID NO:1 through SEQ ID NO:7; or
  - (e) a complement of any of (a), (b), (c) or (d).
18. The isolated polynucleotide of claim 17, wherein the polynucleotide comprises a sequence represented by one of SEQ ID NO:25 through SEQ ID NO:31.
19. The isolated polynucleotide of claim 17, wherein the polynucleotide comprises a sequence which is at least about 90% identical to a sequence of (a), or comprises a complement thereof.
20. The isolated polynucleotide of claim 17, wherein the polynucleotide comprises a sequence which hybridizes specifically under conditions of high stringency to a polynucleotide which comprises a sequence of (a), or which hybridizes specifically under conditions of high stringency to a complement of the sequence of (a).
21. The isolated polynucleotide of claim 17, wherein the polynucleotide comprises a sequence which encodes a polypeptide represented by SEQ ID NO:1 through SEQ ID NO:7, or which comprises a complement of the encoding sequence.
22. The isolated polynucleotide of claim 17, wherein the sequence in (a) is represented by SEQ ID NO:25.
23. The isolated polynucleotide of claim 17, wherein the sequence in (a) is represented by SEQ ID NO:26.

24. The isolated polynucleotide of claim 17, wherein the sequence in (a) is represented by SEQ ID NO:27.
25. The isolated polynucleotide of claim 17, wherein the sequence in (a) is represented by SEQ ID NO:28.
26. The isolated polynucleotide of claim 17, wherein the sequence in (a) is represented by SEQ ID NO:29.
27. The isolated polynucleotide of claim 17, wherein the sequence in (a) is represented by SEQ ID NO:30.
28. The isolated polynucleotide of claim 17, wherein the sequence in (a) is represented by SEQ ID NO:31.
29. A pharmaceutical composition comprising a polynucleotide of claim 17 and a pharmaceutically acceptable carrier or excipient.
30. A recombinant construct, comprising a polynucleotide of claim 17, operably linked to an expression control sequence.
31. A vector comprising the recombinant construct of claim 30.
32. The vector of claim 31, which further comprises one or more sequences encoding a selectable marker.
33. The vector of claim 31, which comprises a plasmid, a bacteriophage, a minichromosome or a eukaryotic virus vector.
34. A host cell comprising a vector of claim 31.
35. The host cell of claim 34, which is prokaryotic.
36. The host cell of claim 34, which is eukaryotic.
37. A method for producing a polypeptide which stimulates a *T. parva*-antigen specific cytotoxic lymphocyte (CTL), comprising culturing a host cell of claim 34 under conditions effective for producing a polypeptide encoded by the polynucleotide, and harvesting the polypeptide.

38. An antibody specific for the polypeptide of claim 1.
39. The antibody of claim 38, which is a polyclonal antibody.
40. The antibody of claim 38, which is coupled to a carrier and/or a label.
41. A kit for detecting the presence of *T. parva* in a sample suspected of containing *T. parva*, or for purifying *T. parva* from a sample containing *T. parva*, comprising an antibody of claim 38.
42. The kit of claim 41, which further comprises means for performing an enzyme-linked or Western blot assay to detect the presence of *T. parva*.
43. The kit of claim 41, which further comprises means for binding the antibody to *T. parva* in the sample, and for releasing the organism from the antibody.
44. A method for protecting an animal against infection by *T. parva*, comprising administering to the animal a polypeptide of claim 1, under conditions effective for the animal to generate a protective antibody against the polypeptide.
45. A method for protecting an animal against infection by *T. parva*, comprising administering to the animal a polypeptide of claim 1, under conditions effective for the animal to generate *T. parva*-antigen-specific CTLs.
46. A method for protecting an animal against infection by *T. parva*, comprising administering to the animal a host cell of claim 34 under conditions effective for the animal to generate a protective antibody against a polypeptide expressed by the polypeptide.
47. A method for protecting an animal against infection by *T. parva*, comprising administering to the animal a host cell of claim 36 under conditions effective for the animal to generate a protective antibody against a polypeptide expressed by the polypeptide.

48. A method for protecting an animal against infection by *T. parva*, comprising administering to the animal a host cell of claim 34, under conditions effective for the animal to generate *T. parva*-antigen-specific CD4+ helper and CD8+ Cytotoxic T lymphocyte responses.

49. A method for protecting an animal against infection by *T. parva*, comprising administering to the animal a host cell of claim 36, under conditions effective for the animal to generate *T. parva*-antigen-specific CD4+ helper and CD8+ Cytotoxic T lymphocyte responses.

50. A method for detecting a pathogenic protozoan infection in a subject, comprising contacting peripheral blood monocytes from the subject with peptide-antigen pulsed cytotoxic T lymphocytes, wherein the cytotoxic T lymphocytes are obtained from an animal to which has been administered a polypeptide of claim 1, under conditions effective for the animal to generate *T. parva*-antigen-specific CTLs.

51. A method for detecting a pathogenic protozoan infection in a subject, comprising contacting peripheral blood monocytes from the subject with peptide-antigen pulsed cytotoxic T lymphocytes, wherein the T lymphocytes are obtained from an animal to which has been administered a host cell of claim 36, under conditions effective for the animal to generate *T. parva*-antigen-specific CD4+ helper and CD8+ Cytotoxic T lymphocyte responses.

52. A method for detecting *T. parva* in a sample suspected of containing *T. parva*, comprising detecting in the sample a polynucleotide of claim 17.

53. The method of claim 52, which is high throughput.

54. A method for preparing a polyclonal antibody, comprising immunizing an animal with one or more polypeptides of claim 1.

55. A method for preparing a polyclonal antibody, comprising immunizing an animal with a host cell of claim 36.

56. A method for preparing a monoclonal antibody, comprising:

- (a) immunizing an animal with a polypeptide of claim 1,
- (b) recovering cells from the animal which produce antibody that binds to the polypeptide,
- (c) preparing a hybridoma with the cells isolated in (b), and
- (d) recovering a monoclonal antibody from the hybridoma that binds to the polypeptide in (a).

57. A method for preparing a monoclonal antibody, comprising:

- (a) immunizing an animal with a host cell of claim 36,
- (b) recovering cells from the animal which produce antibody that binds to a polypeptide produced by the host cell,
- (c) preparing hybridomas with the cells isolated in (b), and
- (d) recovering a monoclonal antibody from the hybridoma that binds to the polypeptide in (b).

58. A method for identifying *T. parva* in a sample suspected of containing *T. parva*, comprising contacting the sample with an antibody of claim 38, under conditions effective for the antibody to bind specifically to its cognate antigen, and detecting the presence of bound antibody.

59. The method of claim 58, wherein the detection is carried out by enzyme immunoassay, radioimmunoassay, fluorescence immunoassay, flocculation, particle agglutination, flow microfluorimetry, a competition assay, or *in situ* chromogenic assay.

60. The method of claim 58, wherein the antibody is a polyclonal antibody.

61. The method of claim 58 or 59, which is quantitative.

62. The method of claim 58 or 59, which is high throughput.